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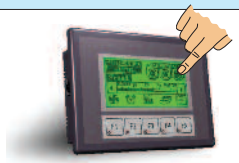
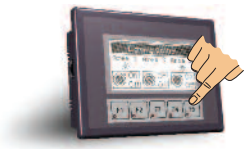
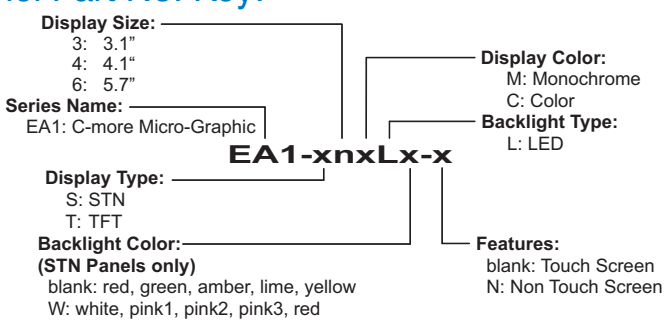
C-more Micro-Graphic Panels Selection Guide

C-more Micro-Graphic Panels			
Part Number		**Description**	**Price**
EA1-S3ML		3.1-inch ***C-more*** Micro-Graphic Touch Panel with green and red LED backlights. Supports 5 selectable backlight colors (Green, Red, Amber, Yellow and Lime). STN LCD monochrome, 128 x 64 dot display. Has 5 user-defined function keys with LED indicators. Power is supplied to the panel through the serial communication port connection when used with ***Direct***LOGIC PLCs having an RJ12 communication port. EA-MG-SP1 (power supply with serial option module) required when connecting to third party PLCs. NEA 4/4X, IP65 (when mounted correctly; for indoor use only).	<--->
EA1-S3ML-N	**Non-Touch**	3.1-inch ***C-more*** Micro-Graphic Non-Touch Panel with green and red LED backlights. Supports 5 selectable backlight colors (Green, Red, Amber, Yellow and Lime). STN LCD monochrome, 128 x 64 dot display. Has 5 user-defined function keys with LED indicators. Power is supplied to the panel through the serial communication port connection when used with ***Direct***LOGIC PLCs having an RJ12 communication port. EA-MG-SP1 (power supply with serial option module) required when connecting to third party PLCs. NEA 4/4X, IP65 (when mounted correctly; for indoor use only).	<--->
EA1-S3MLW		3.1-inch ***C-more*** Micro-Graphic Touch Panel with High Contrast white and red LED backlights. Supports 5 selectable backlight colors (White, Pink1, Pink2, Pink3 and Red). STN LCD monochrome, 128 x 64 dot display. Has 5 user-defined function keys with LED indicators. Power is supplied to the panel through the serial communication port connection when used with ***Direct***LOGIC PLCs having an RJ12 communication port. EA-MG-SP1 (power supply with serial option module) required when connecting to third party PLCs. NEA 4/4X, IP65 (when mounted correctly; for indoor use only).	<--->
EA1-S3MLW-N	**Non-Touch**	3.1-inch ***C-more*** Micro-Graphic Non-Touch Panel with High Contrast white and red LED backlights. Supports 5 selectable backlight colors (White, Pink1, Pink2, Pink3 and Red). STN LCD monochrome, 128 x 64 dot display. Has 5 user-defined function keys with LED indicators. Power is supplied to the panel through the serial communication port connection when used with ***Direct***LOGIC PLCs having an RJ12 communication port. EA-MG-SP1 (power supply with serial option module) required when connecting to third party PLCs. NEA 4/4X, IP65 (when mounted correctly; for indoor use only).	<--->
EA1-T4CL		4-inch ***C-more*** Micro-Graphic Touch Panel with TFT Color LCD, 320 x 240 dot, 32,768 color display with LED backlight. 5 user-defined function keys with LED indicators. Two built-in ports (USB Type-B port and 15-pin D-sub RS-232/422/485 port). Display supports Portrait and Landscape modes. NEMA 4/4X, IP65 (when mounted correctly; for indoor use only).	<--->
EA1-S6ML		5.7-inch ***C-more*** Micro-Graphic Touch Panel with STN LCD monochrome, 320x240 dot display. The panel has red and green LED backlights. Supports 5 selectable backlight colors (Red, Green, Amber, Lime, and Yellow). Includes 5 user-defined function keys with LED indicators. 2 built in serial Ports (RS-232 RJ12 port and 15 pin D-sub RS-232/422/485). NEMA 4/4X, IP65 (when mounted correctly; for indoor use only).	<--->
EA1-S6MLW		5.7-inch ***C-more*** Micro-Graphic Touch Panel with STN LCD monochrome, 320x240 dot display. The panel has white and red LED backlights. Supports 5 selectable backlight colors (White, Pink1, Pink2, Pink3, and Red). Includes 5 user-defined function keys with LED indicators. 2 built in serial Ports (RS-232 RJ12 port and 15 pin D-sub RS-232/422/485). NEMA 4/4X, IP65 (when mounted correctly; for indoor use only).	<--->
EA1-T6CL		5.7-inch ***C-more*** Micro-Graphic Touch Panel with TFT Color LCD, 320 x 240 dot, 32,768 color display with LED backlight. 5 user-defined function keys with LED indicators. Two built-in ports (USB Type-B port and 15-pin D-sub RS-232/422/485 port). Display supports Portrait and Landscape modes. NEMA 4/4X, IP65 (when mounted correctly; for indoor use only).	<--->

C-more Micro-Graphic Panel Part No. Key:



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C-more Micro-Graphic Panels Selection Guide

C-more Micro-Graphic Panel Accessories			
Part Number		**Description**	**Price**
EA-MG-BZ1		8-button keypad bezel for *C-more* 3" Micro-Graphic panels, with 4 arrow adjust keys, and ESCAPE, MENU, CLEAR and ENTER buttons. Helps to reduce screen wear in heavy-duty applications where operators can use the keypad. Designed for easy drop-in of the Micro-Graphic panels.	<--->
EA-MG-BZ2		20-button keypad bezel with numeric keypad for *C-more* 3" Micro-Graphic panels, with 4 arrow adjust keys, and ESCAPE, MENU, CLEAR and ENTER buttons. Helps to reduce screen wear in heavy-duty applications where operators can use the keypad to enter numeric data. Designed for easy drop-in of the Micro-Graphic panels.	<--->
EA-MG-P1		Optional DC Power Adapter for *C-more* 3" Micro-Graphic panels. Required when using third party PLCs, or when using 24 VDC power instead of the 5 VDC supplied from the RJ12 connector of a Productivity Series, CLICK or *Direct*LOGIC PLC.	<--->
EA-MG-SP1		Optional Serial Port with DC Power Adapter for *C-more* 3" Micro-Graphic panels. Serial port is a D-Sub 15-pin RS-232/RS-422/485 connector. Required when using RS422, RS485 or third party PLCs.	<--->
EA-MG-COV-CL		Optional clear screen overlay used to protect *C-more* 3" Micro-Graphic displays from minor scratches and wear. Package contains 5 clear screen overlays.	<--->
EA-4-COV2		Optional clear screen overlay used to protect *C-more* 4" Micro-Graphic displays from minor scratches and wear. Package contains 3 clear screen overlays.	<--->
EA-MG6-BZ2		For Landscape (Horizontal) Mounted Panels. 20-button keypad bezel with numeric keypad for *C-more* 6" Micro-Graphic panels, 4 arrow adjust keys, and ESCAPE, MENU, CLEAR and ENTER buttons. Helps to reduce screen wear in heavy-duty applications where operators can use the keypad to enter numeric data. Designed for easy drop-in of the Micro-Graphic panels.	<--->
EA-MG6-BZ2P		For Portrait (Vertical) Mounted Panels. 21-button keypad bezel with numeric keypad for *C-more* 6" Micro-Graphic panels, 4 arrow adjust keys, and ESCAPE, MENU, CLEAR and (2) ENTER buttons. Helps to reduce screen wear in heavy-duty applications where operators can use the keypad to enter numeric data. Designed for easy drop-in of the Micro-Graphic panels.	<--->
EA-6-COV2		Optional clear screen overlay used to protect *C-more* 6" Micro-Graphic displays from minor scratches and wear. Package contains 3 clear screen overlays.	<--->

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C-more 3" Micro-Graphic STN Non-Touch

Model EA1-S3ML-N *C-more* 3" Micro-Graphic non-touch panel has a 3.1-inch STN LCD monochrome display and five selectable LED-driven backlight colors: Green, Red, Amber, Yellow and Lime. It features a 128 x 64 dot display, and five user-defined function keys each with a user-defined red LED indicator. The panel can display up to 10 lines by 32 characters of static text and up to 10 lines by 21 characters of dynamic text with embedded variables and phrases mixed with graphics. It is rated UL for use on a flat surface of Type 1, 4X enclosure (for indoor use only). This Micro-Graphic panel can receive power from the serial communications port of most AutomationDirect PLCs. An EA-MG-SP1 Serial Port with DC Power Adapter option module (RS-232/422/485) is required when using other controllers.

Part No. EA1-S3ML-N

<--->

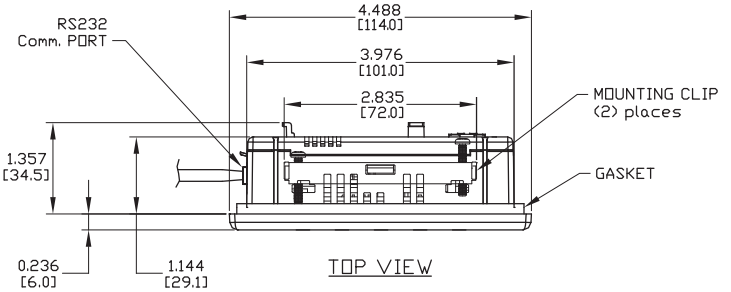
Features

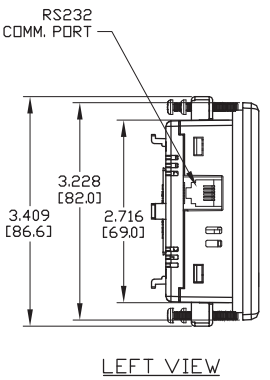
- Free downloadable programming software
- 128 x 64 Dot display with up to 10 lines by 32 characters of text and graphics
- Up to 10 lines by 21 characters of dynamic text with embedded variables and phrases mixed with graphics
- 5 programmable function keys can change with every screen. Can increment / decrement values, trigger recipes, view index of screens.
- 5-Color LED backlight for longer lifetime; Green, Red, Amber, Yellow and Lime
- 2 optional snap-on keypad bezels
- 768 KB memory
- Panel is powered from PLC comm port when using select AutomationDirect PLCs. Use optional DC power adapter and serial port modules if needed for other controllers (RS-232/422/485)
- Built-in Alarm Control setup that activates beep, backlight flash, customized alarm banner, and LED blinking
- 0 to 50 °C (32 to 122 °F) operating temperature range (IEC 60068-2-14)
- NEMA 4/4X, IP65 compliant when mounted correctly, indoor use only
- UL, cUL & CE agency approvals
- 2-year warranty from date of purchase

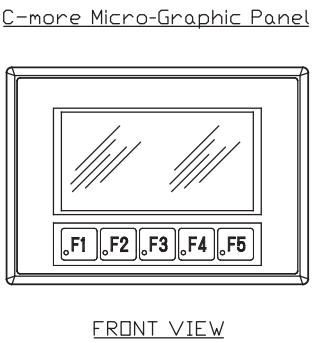
NOTE: Don't forget the optional keypad bezels, DC power adapter and serial port with DC power adapter shown in the Accessories.

Dimensions

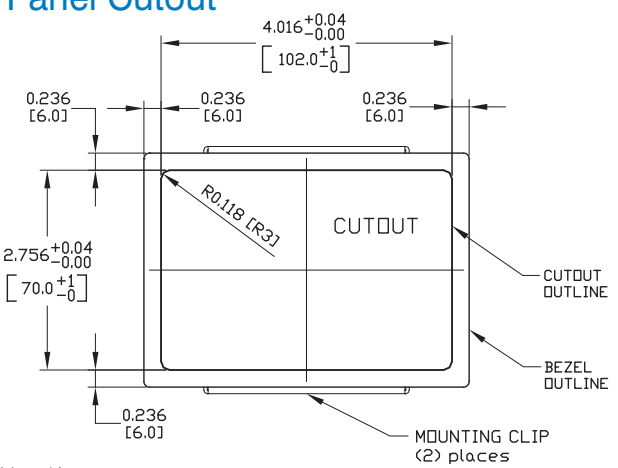
Units: inches [mm]



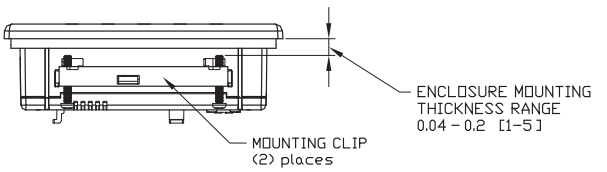




Panel Cutout



Panel Thickness



NOTE: The *C-more* 3" Micro-Graphic cutout dimensions are not equivalent to previous *AutomationDirect* text panels. The *C-more* Micro-Graphic panels will not fit in cutouts for DV-1000, EZText or Optimate panels.

C-more 3" Micro-Graphic STN Non-Touch

Model EA1-S3ML-N *C-more* 3" Micro-Graphic non-touch panel has a 3.1-inch STN LCD monochrome display and five selectable LED-driven backlight colors including White, PInk1, Pink2, Pink3 and Red. It features a 128 x 64 dot display, and five user-defined function keys each with a user-defined red LED indicator. The panel can display up to 10 lines by 32 characters of static text and up to 10 lines by 21 characters of dynamic text with embedded variables and phrases mixed with graphics. It is rated UL for use on a flat surface of Type 1, 4X enclosure (for indoor use only). This Micro-Graphic panel can receive power from the serial communications port of most AutomationDirect PLCs. An EA-MG-SP1 Serial Port with DC Power Adapter option module (RS-232/422/485) is required when using third-party PLCs.

Part No. EA1-S3MLW-N

<---->

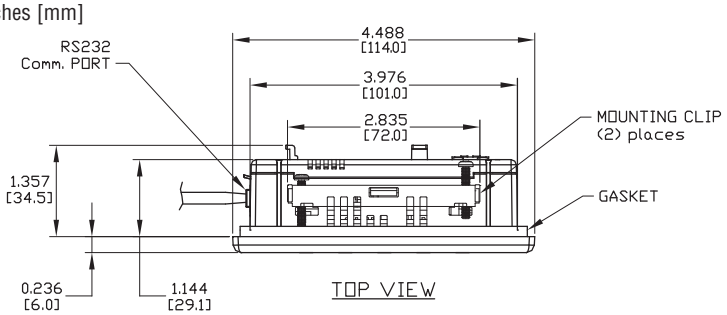
Features

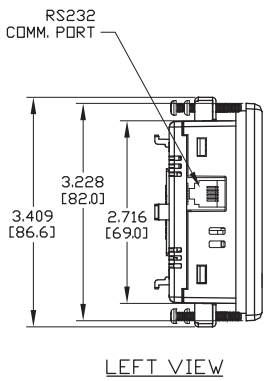
- Free downloadable programming software
- 128 x 64 Dot display with up to 10 lines by 32 characters of text and graphics
- Up to 10 lines by 21 characters of dynamic text with embedded variables and phrases mixed with graphics
- 5 programmable function keys can change with every screen. Can increment / decrement values, trigger recipes, view index of screens.
- 5-Color LED backlight for longer lifetime; White, Pink1, Pink2, Pink3 and Red
- 2 optional snap-on keypad bezels
- 768 KB memory
- Panel is powered from PLC comm port when using select AutomationDirect PLCs. Use optional DC power adapter and serial port modules if needed for other controllers (RS-232/422/485)
- Built-in Alarm Control setup that activates beep, backlight flash, customized alarm banner, and LED blinking
- 0 to 50 °C (32 to 122 °F) operating temperature range (IEC 60068-2-14)
- NEMA 4/4X, IP65 compliant when mounted correctly, indoor use only
- UL, cUL & CE agency approvals
- 2-year warranty from date of purchase

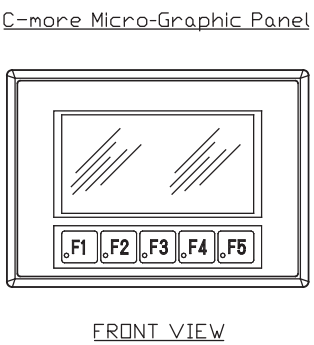
NOTE: Don't forget the optional keypad bezels, DC power adapter and serial port with DC power adapter shown in the Accessories.

Dimensions

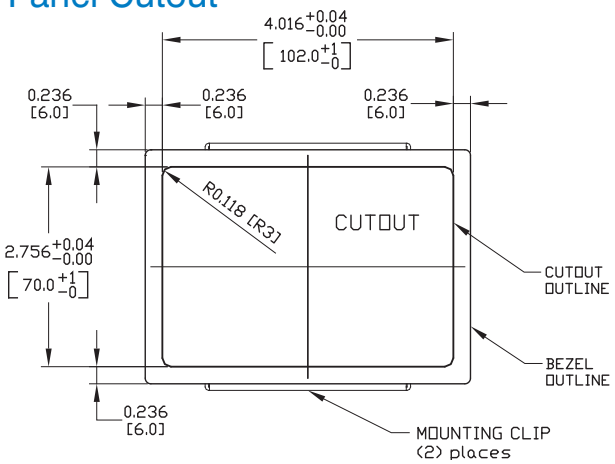
Units: inches [mm]



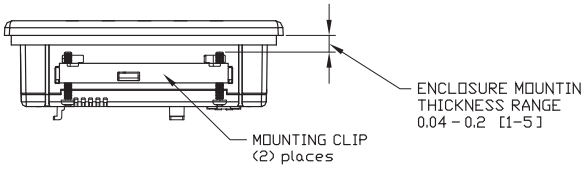




Panel Cutout



Panel Thickness



NOTE: The *C-more* 3" Micro-Graphic cutout dimensions are not equivalent to previous *AutomationDirect* text panels. The *C-more* Micro-Graphic panels will not fit in cutouts for DV-1000, EZText or Optimate panels.

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C-more 3” Micro-Graphic Specifications

Specification \ Model	3” STN Micro-Graphic Panel Touch Screen	3” STN Micro-Graphic Panel Non-Touch Screen
Part Number	EA1-S3ML, EA1-S3MLW	EA1-S3ML-N, EA1-S3MLW-N
Description	128 x 64 dots LCD display, five user defined keypad function buttons, and five user defined LED's	
Display		
• Type	3.1" STN monochrome LCD, graphical characters	
• Resolution	128 (W) x 64 (H) dots	
• Color	2 colors (normal / inverse)	
• Viewing Area Size	2.789” (W) x 1.385” (H) [70.8 mm x 35.2 mm]	
• Active Area Size	2.670” (W) x 1.259” (H) [67.8 mm x 32.0 mm]	
• Contrast	Adjusted from the panel's built-in configuration setup menu	
• Viewing Angle	3, 9 o'clock axis –> 45 degrees 6 o'clock axis –> 45 degrees 12 o'clock axis –> 30 degrees	
Backlight		
• Type	LED	
• Color	5 user defined colors: **EA1-S3ML, EA1-S3ML-N -** Red, Green, Amber, Lime, and Yellow **EA1-S3MLW, EA1-S3MLW-N -** White, Pink1, Pink2, Pink3 and Red	
• User Replaceable	No	
Touch Screen		
• Type	Analog touch panel	N/A
• Operation	51 gram force [0.5 N] maximum	N/A
• Life	Minimum of 1,000,000 cycles	N/A
Features		
• User Memory	768 KB	
• Number of Screens	Up to 999 – limited by project memory usage	
• Beep (Internal)	Yes	
• Keypad Function Buttons	Five user defined function key buttons with the ability to customize the label. Minimum of 500,000 cycles	
• Keypad Function Button LEDs	Each function key button includes a red LED that can be user programmed.	
• Serial Communications	Built-in RJ12 serial communications port (RS-232). Optional serial communications port (RS-232, RS-485/422) when using the optional EA-MG-SP1 Serial Port with DC Power Adapter.	
• Expansion Connection	Yes – used with optional Keypad Bezels, EA-MG-BZ1 & BZ2, and EA-MG-P1 DC Power Adapter, and EA-MG-SP1 Serial Port with DC Power Adapter.	
Screen Objects		
• Functional Devices	Push Button, Switch, Indicator Button, Indicator Light, Graphic Indicator Light, Numeric Display, Numeric Entry, Inc/Dec Value, Bar Graph, Bitmap Button, Static Bitmap, Dynamic Bitmap, Recipe Button, Static Text, Lookup Text, Dynamic Text, Scroll Text, Screen Change Push Button, Screen Selector, Adjust Contrast, Function, Key Configuration Object, Realtime Graph, Line Graph, Analog Meter	
• Static Shapes	Lines, Rectangles, Circles and Frames	
• Displayable Fonts	Fixed fonts: 4x6, 6x6, 6x6B, 6x8, 8x16, 8x32, 8x64, 16x16, 16x32, 16x64, 32x16, 32x32, 32x64, and Windows fonts	

C-more 3” Micro-Graphic panel specifications continued on next page.

NOTE: Photo includes EA-MG-BZ2

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C-more 3” Micro-Graphic Specifications

Specification \ Model	3” STN Micro-Graphic Panel Touch Screen	3” STN Micro-Graphic Panel Non-Touch Screen
Part Number	EA1-S3ML, EA1-S3MLW	EA1-S3ML-N, EA1-S3MLW-N
Electrical		
• Input Voltage Range	5.0 VDC (4.75 – 5.25 VDC)	
• Input Power	Supplied through the panel’s RJ12 serial communications port connection when used with any AutomationDirect PLC having an RJ12 communication port. Can also be supplied from an external 12-24 VDC power source when using the optional EA-MG-P1 DC Power Adapter, or the optional EA-MG-SP1 Serial Port with DC Power Adapter	
• Power Consumption	1.05W (220mA @ 4.75 VDC)	
• Recommended Fuse	Type AGC fast acting glass fuse, 250 mA, 250 VAC, ADC p/n AGC-25 No fuse required when directly connected to a PLC or PC with recommended cable.	
• Maximum Inrush Current	1 A for 500 µs	
• Acceptable External Power Drop Duration	Maximum 1 ms	
Environmental		
• Operating Temperature	0 to 50 °C (32 to 122 °F) Maximum surrounding air temperature rating: 50 °C	
• Storage Temperature	–20 to +60 °C (–4 to +140 °F)	
• Humidity	5–95% RH (non-condensing)	
• Environmental Air	For use in Pollution Degree 2 Environment	
• Vibration	IEC60068-2-6 (Test Fc), 5-9 Hz: 3.5 mm amplitude, 9-150 Hz: 1.0G, sweeping, at a rate of 1 octave/min. (±10%), 10 sweep cycles per axis on each of 3 mutually perpendicular axes	
• Shock	IEC60068-2-27 (Test Ea), 15 G peak, 11 ms duration, three shocks in each direction per axis, on 3 mutually perpendicular axes (total of 18 shocks)	
• Noise Immunity	NEMA ICS3-304 RFI, (145 MHz, 440 Mhz 10 W @ 10 cm) Impulse 1000 V @ 1 µs pulse	
• Enclosure	For use on a flat surface of Type 1, 4X enclosure (Indoor use only)	
• Agency Approvals	CE (EN61131-2), UL508, CUL Canadian C22.2 No. 142-M95, UL File E157382, CSA File 234884	
Physical		
• Dimensions	4.488” (W) x 3.228” (H) x 1.593” (D) [114.0 mm x 82.0 mm x 40.5 mm]	
• Enclosure Mounting Thickness Range	0.04” – 0.2” [1 – 5 mm]	
• Mounting Clip Screw Torque Range	21 – 28 oz-in [0.15 – 0.2 Nm]	
• Depth from bezel rear with options Module	2.295” [58.3 mm]	
• Weight	5.82 oz. (165 g)	

NOTE: The environmental specifications for the panels shown above are also applicable for the *C-more* Micro-Graphic Accessories shown later in this section of the catalog.

Supported Protocols / Drivers	
Serial - Panel port1 or port2*	***Serial - Panel port2 only ****
AutomationDirect Productivity Series	Allen-Bradley DF1 Full Duplex
AutomationDirect CLICK	Allen-Bradley DF1 Half Duplex
AutomationDirect K-sequence	Allen-Bradley PLC5 DF1
AutomationDirect DirectNET	Allen-Bradley DH485
AutomationDirect Modbus	GE SNPX (90/30, 90/70, Micro 90, VersaMax Micro)
Modicon Modbus RTU	Mitsubishi FX
Entivity Modbus RTU	Mitsubishi Q & QnA
GS Drives	Omron Host Link (C200 Adapter, C500)
SOLO Temperature Controller	Omron FINS Serial (CJ1, CS1)
	Siemens PPI (S7-200 CPU)

***Note: Serial port 2 requires the use of EA-MG-SP1 adapter for C-more 3” Micro-Graphic panels**

For a list of supported protocols and cabling options refer to the 3” *C-more* Micro-Graphic Protocols and cabling chart starting on page 11-24.

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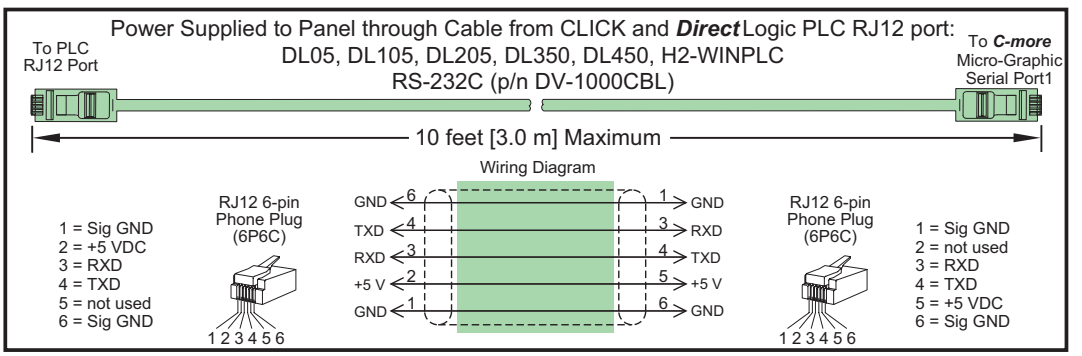
C-more 3” Micro-Graphic Power Connection Wiring

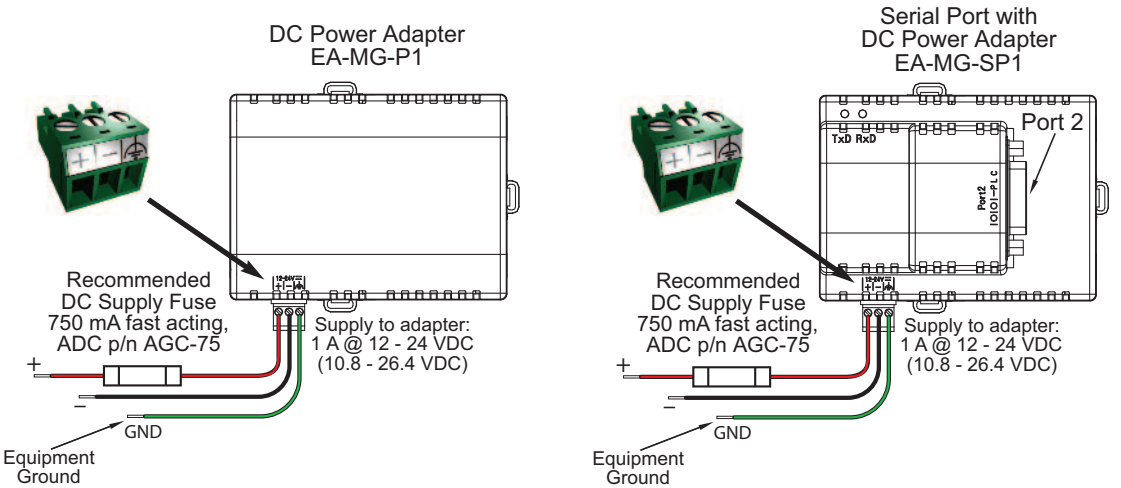
Providing power to the touch panel

- The ***C-more*** 3” Micro-Graphic panel is powered during programming from the PC through the USB to RS-232 Programming Cable Assembly, EA-MG-PGM-CBL.
- During operation, the ***C-more*** Micro-Graphic panel is powered from an ***AutomationDirect*** CLICK, ***Direct***LOGIC PLC or Productivity PAC RJ12 serial communications port by using the DV-1000CBL communications cable.
- Or install either the DC Power Adapter, EA-MG-P1, or the Serial Port with DC Power Adapter, EA-MG SP1, to the rear of the panel and supply the adapter from a 12-24 VDC power source.

3” Panel powered from AutomationDirect CLICK or ***Direct***LOGIC PLC via communications cable

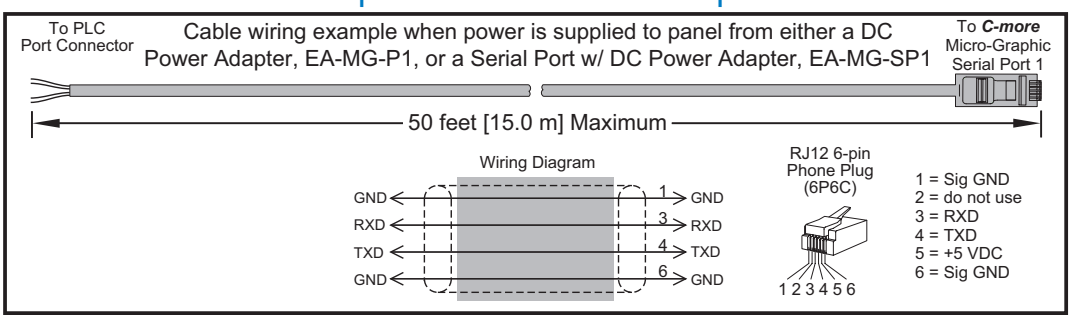


3” panel powered from a DC power adapter – wiring diagram



NOTE: Recommended DC power supply to power either DC Power Adapter, *AutomationDirect* Part No. PSP24-024S or PSP24-024C.

Maximum communication cable length when 3” panel is powered from an optional DC Power Adapter



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C-more 3" Micro-Graphic PLC Connections

Cabling requirements

The following cables can be used when connecting the *C-more* 3" Micro-Graphic panel's built-in RJ12 serial port (Port1) with the Productivity Series, CLICK, DL05, DL06, DL105, DL205, D3-350 and DL405 CPUs.

- **DV-1000CBL — connects to Productivity Series, CLICK, DL05, DL06, DL105, DL205, D3-350 and D4-450 phone jack.**
- **D4-1000CBL — connects to all DL405 CPU 15-pin ports.**

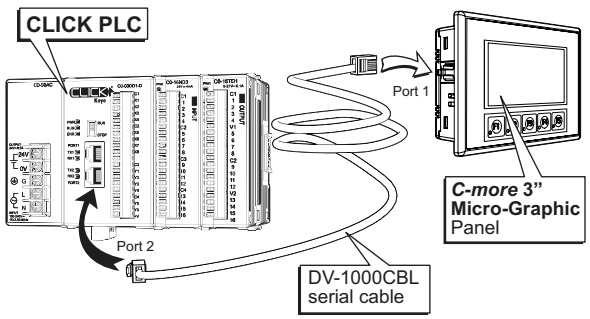
A maximum cable length of **10 feet** between the *C-more* Micro-Graphic panel and the PLC is recommended when powering the panel from the PLC.

The Serial Port with DC Power Adapter module, EA-MG-SP1, can be used with the C-more 3" Micro-Graphic panels if the application requires the use of RS-422 or RS-485. The serial port on the adapter, designated as port 2, can also be wired for RS-232. The use of the adapter permits greater cable length. See the Communication Protocols & Cabling Charts in this catalog section for details on the selection of various controllers, protocols, and connectivity.

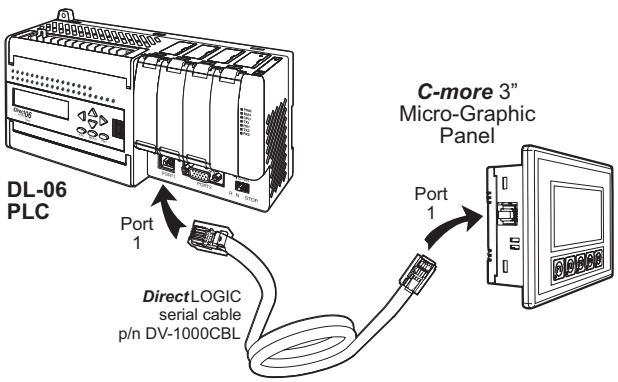
Drivers for your Controller

- AutomationDirect Productivity Series
- AutomationDirect CLICK (Modbus)
- ***Direct***LOGIC K-sequence, *Direct*LOGIC *Direct*NET, ***Direct***LOGIC Modbus (Koyo Addressing)
- Modbus RTU
- Allen Bradley DF1 Full Duplex, Allen Bradley DF1 Half Duplex, Allen Bradley PLC5 DF1, AB DH485
- Omron Host Link (C200 Adapter, C500) Omron FINS serial (CJ1, CS1)
- GE SNPX (90/30, 90/70, Micro 90, VersaMax Micro)
- Mitsubishi Melsec FX
- Siemens PPI
- Entivity Modbus RTU
- GS Drives
- SOLO Temperature Controllers
- Mitsubishi Q/QnA

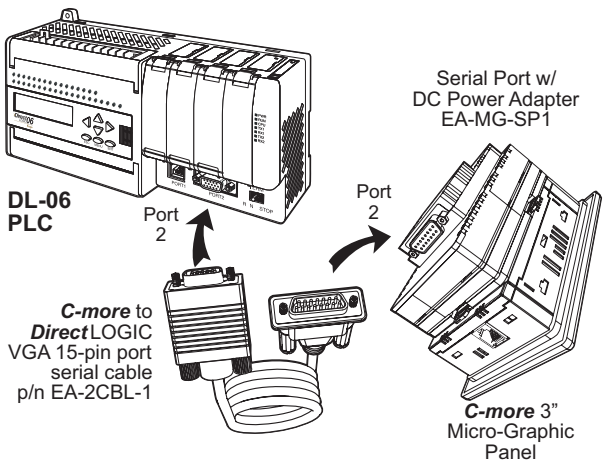
C-more 3" Micro-Graphic Port 1 to CLICK PLC Port 2



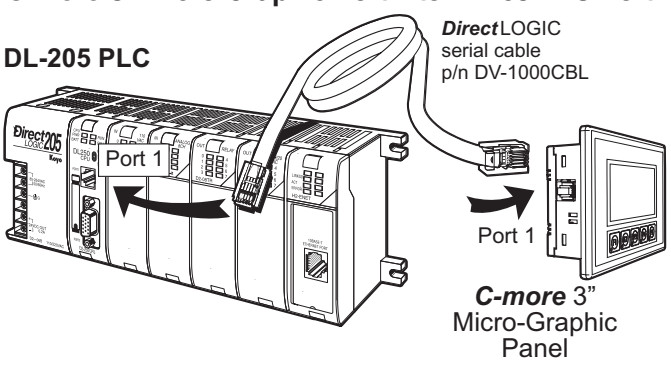
C-more 3" Micro-Graphic Port 1 to DL06 PLC Port 1



C-more 3" Micro-Graphic Port 2 to DL06 PLC Port 2



C-more 3" Micro-Graphic Port 1 to DL205 PLC Port 1



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C-more 3" Micro-Graphic Communication Protocols & Cabling Chart

Contoller Compatibility & Connection Chart

PLC			*C-more Micro-Graphic Panel.*							
			Panel to PLC Cabling Components Required for Specific Port and Protocol being used.							
Family	*CPU*	*Port & Type*	**PLC Port Powered** Powered with 5 VDC from the connected PLC's comm. port.		**DC Power Adapter** Powered from an external 24 VDC source using the DC Power Adapter, EA-MG-P1.		**Serial Port with DC Power Adapter** Powered from an external 24 VDC source using the Serial Port with DC Power Adapter, EA-MG-SP1.			
			Using panel's RJ12 port 1		Using panel's RJ12 port 1		Using panel's RJ12 port 1		Using adapter's serial Port 2 15-pin D-sub - female	
			Protocol(s) Supported	Components & Network Type	Protocol(s) Supported	Components & Network Type	Protocol(s) Supported	Components & Network Type	Protocol(s) Supported	Components & Network Type
CLICK	all versions	Port 1 RJ12 - 6 pin	Automation Direct Modbus (CLICK)	**DV-1000CBL** RS-232	Automation Direct Modbus (CLICK)	**DV-1000CBL** RS-232	Automation Direct Modbus (CLICK)	**DV-1000CBL** RS-232	Automation Direct Modbus (CLICK)	**EA-2CBL** RS-232
		Port 2 RJ12 - 6 pin								
	Analog CPU's	Port 3 Terminal block - 3-pin		N/A		N/A		N/A		**See Note** RS-485
Productivity Series	all versions	RS-232 RJ12 - 6 pin	Automation Direct Productivity3000 Serial (P3-550)	**DV-1000CBL**	Automation Direct Productivity3000 Serial (P3-550)	**DV-1000CBL** RS-232	Automation Direct Productivity3000 Serial (P3-550)	**DV-1000CBL** RS-232	Automation Direct Productivity3000 Serial (P3-550)	**DV-1000CBL** RS-232
		RS-485 Port Term block 3-pin		N/A		N/A		N/A		**See Note** RS-485
***Direct*LOGIC DL05 (see D0-DCM under DL06)**	all versions	Port 1 RJ12 - 6 pin	K-sequence, ***Direct*NET**, Modbus RTU	**DV-1000CBL** RS-232	K-sequence, ***Direct*NET**, Modbus RTU	**DV-1000CBL** RS-232	K-sequence, ***Direct*NET**, Modbus RTU	**DV-1000CBL** RS-232	K-sequence, ***Direct*NET**, Modbus RTU	**EA-2CBL** RS-232
		Port 2 RJ12 - 6 pin								
***Direct*LOGIC DL06**	all versions	Port 1 RJ12 - 6 pin	K-sequence, ***Direct*NET**, Modbus RTU	**DV-1000CBL** RS-232	K-sequence, ***Direct*NET**, Modbus RTU	**DV-1000CBL** RS-232	K-sequence, ***Direct*NET**, Modbus RTU	**DV-1000CBL** RS-232	K-sequence, ***Direct*NET**, Modbus RTU	**EA-2CBL** RS-232
		Port 2 DB15HD (female)		**DV-1000CBL + FA-15HD** RS-232		**DV-1000CBL + FA-15HD** RS-232		**DV-1000CBL + FA-15HD** RS-232		**EA-2CBL-1** RS-232
										See Note RS-422
									Modbus RTU	**See Note** RS-485 Modbus only
	D0-DCM	Port 1 RJ12 - 6 pin	K-sequence, ***Direct*NET**, Modbus RTU	**DV-1000CBL** RS-232	K-sequence, ***Direct*NET**, Modbus RTU	**DV-1000CBL** RS-232	K-sequence, ***Direct*NET**, Modbus RTU	**DV-1000CBL** RS-232	K-sequence, ***Direct*NET**, Modbus RTU	**EA-2CBL** RS-232
		Port 2 DB15HD (female)		**DV-1000CBL + FA-15HD** RS-232		**DV-1000CBL + FA-15HD** RS-232		**DV-1000CBL + FA-15HD** RS-232		**EA-2CBL-1** RS-232
										See Note RS-422
									Modbus RTU	**See Note** RS-485 Modbus only
***Direct*LOGIC DL105**	all versions	Port 1 RJ12 - 6 pin	K-sequence	**DV-1000CBL** RS-232	K-sequence	**DV-1000CBL** RS-232	K-sequence	**DV-1000CBL** RS-232	K-sequence	**EA-2CBL** RS-232

Note: See the *C-more* Micro-Graphic Hardware User Manual, Chapter 6: PLC Communications, for wiring diagrams that the user can use to construct their own cables. Available for download at www.automationdirect.com. PLC Compatibility & Connection Chart continued on next page.

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C-more 3" Micro-Graphic Communication Protocols & Cabling Chart (cont'd)

Controller Compatibility & Connection Chart

PLC			C-more Micro-Graphic Panel							
			Panel to PLC Cabling Components Required for Specific Port and Protocol being used.							
			PLC Port Powered Powered with 5 VDC from the connected PLC's comm. port.		**DC Power Adapter** Powered from an external 24 VDC source using the DC Power Adapter, EA-MG-P1.		**Serial Port with DC Power Adapter** Powered from an external 24 VDC source using the Serial Port with DC Power Adapter, EA-MG-SP1.			
			Using panel's RJ12 port 1		Using panel's RJ12 port 1		Using panel's RJ12 port 1		Using adapter's serial Port 2 15-pin D-sub - female	
Family	CPU	Port & Type	Protocol(s) Supported	Components & Network Type	Protocol(s) Supported	Components & Network Type	Protocol(s) Supported	Components & Network Type	Protocol(s) Supported	Components & Network Type
DirectLOGIC DL205	D2-230	Port 1 RJ12 - 6 pin	K-sequence	DV-1000CBL RS-232	K-sequence	DV-1000CBL RS-232	K-sequence	DV-1000CBL RS-232	K-sequence	EA-2CBL RS-232
	D2-240	Port 1 RJ12 - 6 pin	K-sequence	DV-1000CBL RS-232	K-sequence	DV-1000CBL RS-232	K-sequence	DV-1000CBL RS-232	K-sequence	EA-2CBL RS-232
		Port 2 RJ12 - 6 pin	K-sequence, DirectNET		K-sequence, DirectNET		K-sequence, DirectNET		K-sequence, DirectNET	
	D2-250-1	Port 1 RJ12 - 6 pin	K-sequence, DirectNET, Modbus RTU	DV-1000CBL RS-232	K-sequence, DirectNET, Modbus RTU	DV-1000CBL RS-232	K-sequence, DirectNET, Modbus RTU	DV-1000CBL RS-232	K-sequence, DirectNET, Modbus RTU	EA-2CBL RS-232
		Port 2 DB15HD (female)		DV-1000CBL + FA-15HD RS-232		DV-1000CBL + FA-15HD RS-232		DV-1000CBL + FA-15HD RS-232		EA-2CBL-1 RS-232
										See Note RS-422
	D2-260	Port 1 RJ12 - 6 pin	K-sequence, DirectNET, Modbus RTU	DV-1000CBL RS-232	K-sequence, DirectNET, Modbus RTU	DV-1000CBL RS-232	K-sequence, DirectNET, Modbus RTU	DV-1000CBL RS-232	K-sequence, DirectNET, Modbus RTU	EA-2CBL RS-232
		Port 2 DB15HD (female)		DV-1000CBL + FA-15HD RS-232		DV-1000CBL + FA-15HD RS-232		DV-1000CBL + FA-15HD RS-232		EA-2CBL-1 RS-232
										See Note RS-422
									Modbus RTU	See Note RS-485 Modbus only
	D2-DCM	Port 1 DB 25 pin (female)	K-sequence, DirectNET, Modbus RTU	See Note RS-232	K-sequence, DirectNET, Modbus RTU	See Note RS-232	K-sequence, DirectNET, Modbus RTU	See Note RS-232	DirectNET	EA-4CBL-2 RS-232
										See Note RS-422
	WINPLC	Port 1 RJ12 - 6 pin	Modbus RTU	DV-1000CBL RS-232	Modbus RTU	DV-1000CBL RS-232	Modbus RTU	DV-1000CBL RS-232	Modbus RTU	EA-2CBL RS-232
DirectLOGIC DL305	D3-330 or D3-340	D3-232-DCU DB 25 pin .(female)	N/A		DirectNET	See Note RS-232	DirectNET	See Note RS-232	DirectNET	EA-4CBL-2 RS-232
		D3-422-DCU DB 25 pin (female)	N/A		N/A		N/A		DirectNET	See Note RS-422
	D3-340	Port 1 RJ11 - 4 pin	N/A		DirectNET	OP-3CBL-1 RS-232	DirectNET	OP-3CBL-1 RS-232	DirectNET	EA-3CBL RS-232
		Port 2 RJ11 - 4 pin	N/A		DirectNET, Modbus RTU		DirectNET, Modbus RTU		DirectNET, Modbus RTU	
	D3-350	Port 1 RJ12 - 6 pin	K-sequence, DirectNET	DV-1000CBL RS-232	K-sequence, DirectNET	DV-1000CBL RS-232	K-sequence, DirectNET	DV-1000CBL RS-232	K-sequence, DirectNET	EA-2CBL RS-232
		Port 2 DB 25 pin (female)	N/A		K-sequence, DirectNET, Modbus RTU	See Note RS-232	K-sequence, DirectNET, Modbus RTU	See Note RS-232	K-sequence, DirectNET, Modbus RTU	EA-4CBL-2 RS-232
										See Note RS-422
	D3-DCM D3-350 only	Port 1 DB 25 pin (female)	K-sequence, DirectNET, Modbus RTU	See Note RS-232	K-sequence, DirectNET, Modbus RTU	See Note RS-232	K-sequence, DirectNET, Modbus RTU	See Note RS-232	DirectNET	EA-4CBL-2 RS-232
										See Note RS-422

Note: See the *C-more* Micro-Graphic Hardware User Manual, Chapter 6: PLC Communications, for wiring diagrams that the user can use to construct their own cables. Available for download at www.automationdirect.com. PLC Compatibility & Connection Chart continued on next page.

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C-more 3" Micro-Graphic Communication Protocols & Cabling Chart (cont'd)

Controller Compatibility & Connection Chart

PLC			*C-more* Micro-Graphic Panel							
			Panel to PLC Cabling Components Required for Specific Port and Protocol being used.							
			PLC Port Powered Powered with 5 VDC from the connected PLC's comm. port.		**DC Power Adapter** Powered from an external 24 VDC source using the DC Power Adapter, EA-MG-P1.		**Serial Port with DC Power Adapter** Powered from an external 24 VDC source using the Serial Port with DC Power Adapter, EA-MG-SP1.			
			Using panel's RJ12 port 1		Using panel's RJ12 port 1		Using panel's RJ12 port 1		Using adapter's serial Port 2 15-pin D-sub - female	
Family	***CPU***	***Port & Type***	Protocol(s) Supported	Components & Network Type	Protocol(s) Supported	Components & Network Type	Protocol(s) Supported	Components & Network Type	Protocol(s) Supported	Components & Network Type
***Direct*LOGIC DL405**	D4-430	Port 0 DB 15 pin (female)	K-sequence	**D4-1000CBL or DV-1000CBL & FA-CABKIT** RS-232	K-sequence	**D4-1000CBL or DV-1000CBL & FA-CABKIT** RS-232	K-sequence	**D4-1000CBL or DV-1000CBL & FA-CABKIT** RS-232	K-sequence	**EA-4CBL-1** RS-232
		Port 1 DB 25 pin (female)	N/A		K-sequence, ***Direct*NET**	**DV-1000CBL & FA-CABKIT** RS-232	K-sequence, ***Direct*NET**	**DV-1000CBL & FA-CABKIT** RS-232	K-sequence, ***Direct*NET**	**EA-4CBL-2** RS-232 **See Note** RS-422
	D4-440	Port 0 DB 15 pin (female)	K-sequence	**D4-1000CBL or DV-1000CBL & FA-CABKIT** RS-232	K-sequence	**D4-1000CBL or DV-1000CBL & FA-CABKIT** RS-232	K-sequence	**D4-1000CBL or DV-1000CBL & FA-CABKIT** RS-232	K-sequence	**EA-4CBL-1** RS-232
		Port 1 DB 25 pin (female)	N/A		K-sequence, ***Direct*NET**	**DV-1000CBL & FA-CABKIT** RS-232	K-sequence, ***Direct*NET**	**DV-1000CBL & FA-CABKIT** RS-232	K-sequence, ***Direct*NET**	**EA-4CBL-2** RS-232 **See Note** RS-422
	D4-450	Port 0 DB 15 pin (female)	K-sequence	**D4-1000CBL or DV-1000CBL & FA-CABKIT** RS-232	K-sequence	**D4-1000CBL or DV-1000CBL & FA-CABKIT** RS-232	K-sequence	**D4-1000CBL or DV-1000CBL & FA-CABKIT** RS-232	K-sequence	**EA-4CBL-1** RS-232
		Port 1 DB 25 pin (female)	N/A		K-sequence, ***Direct*NET**, Modbus RTU	**DV-1000CBL & FA-CABKIT** RS-232	K-sequence, ***Direct*NET**, Modbus RTU	**DV-1000CBL & FA-CABKIT** RS-232	K-sequence, ***Direct*NET**, Modbus RTU	**EA-4CBL-2** RS-232 **See Note** RS-422
		Port 2 RJ12 - 6 pin	K-sequence, ***Direct*NET**	**DV-1000CBL** RS-232	K-sequence, ***Direct*NET**	**DV-1000CBL** RS-232	K-sequence, ***Direct*NET**	**DV-1000CBL** RS-232	K-sequence, ***Direct*NET**	**EA-2CBL** RS-232
		Port 3 DB 25 pin (female)	N/A		N/A		N/A		K-sequence, ***Direct*NET**, Modbus RTU	**See Note** RS-422
	D4-DCM	Port 1 DB 25 pin (female)	K-sequence, ***Direct*NET**, Modbus RTU	**See Note** RS-232	K-sequence, ***Direct*NET**, Modbus RTU	**See Note** RS-232	K-sequence, ***Direct*NET**, Modbus RTU	**See Note** RS-232	***Direct*NET**	**EA-4CBL-2** RS-232 **See Note** RS-422
SOLO	N/A	Data +/- terminals	N/A		N/A		N/A		SOLO Temperature Controller	**See Note** RS-485
GS Drives	N/A	RS-485 Interface	N/A		N/A		N/A		GS Drives Serial GS Drives TCP/IP (GS-EDRV)	**See Note** RS-485

Note: See the *C-more* Micro-Graphic Hardware User Manual, Chapter 6: PLC Communications, for wiring diagrams that the user can use to construct their own cables. Available for download at www.automationdirect.com. PLC Compatibility & Connection Chart continued on next page.

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C-more 3" Micro-Graphic Communication Protocols & Cabling Chart (cont'd)

Controller Compatibility & Connection Chart

PLC			C-more Micro-Graphic Panel							
			Panel to PLC Cabling Components Required for Specific Port and Protocol being used.							
			PLC Port Powered Powered with 5 VDC from the connected PLC's comm. port.		**DC Power Adapter** Powered from an external 24 VDC source using the DC Power Adapter, EA-MG-P1.		**Serial Port with DC Power Adapter** Powered from an external 24 VDC source using the Serial Port with DC Power Adapter, EA-MG-SP1.			
			Using panel's RJ12 port 1		Using panel's RJ12 port 1		Using panel's RJ12 port 1		Using adapter's serial Port 2 15-pin D-sub - female	
Family	*CPU*	*Port & Type*	Protocol(s) Supported	Components & Network Type	Protocol(s) Supported	Components & Network Type	Protocol(s) Supported	Components & Network Type	Protocol(s) Supported	Components & Network Type
Allen-Bradley MicroLogix	1000, 1100, 1200, 1500	8-pin mini-din port	N/A		N/A		N/A		DF1 Full Duplex DF1 Half Duplex	EA-MLOGIX-CBL RS-232
		RJ45 8-pin phone plug							DH485/AIC/AIC+	EA-DH485-CBL RS-232
Allen-Bradley SLC500	5/03, 5/04, 5/05	9-pin D-sub port							DF1 Full Duplex DF1 Half Duplex	EA-SLC-232-CBL RS-232
	5/01, 5/02, 5/03	RJ45 8-pin phone plug							DH485/AIC/AIC+	EA-DH485-CBL RS-232
Allen-Bradley ControlLogix	all	9-pin D-sub port							DF1 Full Duplex DF1 Half Duplex	EA-SLC-232-CBL RS-232
Allen-Bradley CompactLogix	all	9-pin D-sub port							DF1 Full Duplex DF1 Half Duplex	EA-SLC-232-CBL RS-232
Allen-Bradley FlexLogix	all	9-pin D-sub port							DF1 Full Duplex DF1 Half Duplex	EA-SLC-232-CBL RS-232
Allen-Bradley PLC5	all	25-pin D-sub port							DF1 Full Duplex	EA-PLC5–232-CBL RS-232
		RJ45 8-pin phone plug							DH485/AIC/AIC+	EA-DH485-CBL RS-232
GE	90/30	15-pin D-sub port							SNPX	EA-90-30-CBL RS-422
	Micro 90, VersaMax Micro	RJ45 Port 1								See Note RS-232
		15-pin D-sub port Port 2								EA-90-30-CBL RS-422
Mitsubishi	Melsec FX Series	25-pin D-sub port							CPU Direct	EA-MITSU-CBL RS-422
		8-pin mini-din port								EA-MITSU-CBL-1 RS-422
	Q / QnA	9-pin D-sub port							Q / QnA	See Note RS-232
		6-pin mini-din port								See Note RS-232
Omron	C200 (Adapter), C500	25-pin D-sub port							Host Link	EA-OMRON-CBL RS-232
	CJ1, CS1, CQM1, CPM1, CPM2, C200	9-pin D-sub port							FINS	See Note RS-232
Modicon	984 CPU, Quantum 113 CPU, AEG Modicon Micro Series 110 CPU	varies							Modbus RTU	See Note RS-232
Siemens	S7-200 CPU	9-pin D-sub port 0 or 1							PPI	See Note RS-485

Note: See the *C-more* Micro-Graphic Hardware User Manual, Chapter 6: PLC Communications, for wiring diagrams that the user can use to construct their own cables. Available for download at www.automationdirect.com. Available cables with descriptions shown on the next page.

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C-more 3" Micro-Graphic Communication Cables and Cable Kits

Cable Description	Cable Part Number	Price
Cables for direct connect to panel's serial Port1 (Panel powered from PLC's serial port.)		
AutomationDirect Productivity Series, AutomationDirect CLICK, ***Direct***LOGIC PLC RJ-12 port, DL05, DL06, DL105, DL205, D3-350, D4-450 & H2-WinPLC (RS-232C).	***DV-1000CBL***	<--->
DirectLOGIC DL405 PLC 15-pin D-sub port, DL405 (RS-232C).	***D4-1000CBL***	<--->
DirectLOGIC (VGA Style) 15-pin port, DL06, D2-250 (250-1), D2-260 (RS-232C). **Use with DV-1000CBL cable.**	***FA-15HD***	<--->
DirectLOGIC PLC 15-pin D-sub port, DL405 (RS-232C). **Use with DV-1000CBL cable.**	***FA-CABKIT***	<--->
DirectLOGIC PLC RJ-11 port, D3-340 (RS-232C).	***OP-3CBL-1***	<--->
Cables used with serial Port2		
AutomationDirect Productivity Series, AutomationDirect CLICK, ***Direct***LOGIC PLC RJ-12 port, DL05, DL06, DL105, DL205, D3-350, D4-450 & H2-WinPLC (RS-232C).	***EA-2CBL***	<--->
DirectLOGIC (VGA Style) 15-pin port, DL06, D2-250 (250-1), D2-260 (RS-232C).	***EA-2CBL-1***	<--->
DirectLOGIC PLC RJ-11 port, D3-340 (RS-232C).	***EA-3CBL***	<--->
DirectLOGIC DL405 PLC 15-pin D-sub port, DL405 (RS-232C).	***EA-4CBL-1***	<--->
DirectLOGIC PLC 25-pin D-sub port, DL405, D3-350, DL305 DCU and all DCM's (RS-232C).	***EA-4CBL-2***	<--->
Allen-Bradley MicroLogix 1000, 1100, 1200 & 1500 (RS-232C)	***EA-MLOGIX-CBL***	<--->
Allen-Bradley SLC 5-03/04/05, ControlLogix, CompactLogix, FlexLogix DF1 port (RS-232C)	***EA-SLC-232-CBL***	<--->
Allen-Bradley PLC-5 DF1 port (RS-232C)	***EA-PLC5-232-CBL***	<--->
Allen-Bradley MicroLogix, SLC-5-01/02/03, PLC5 DH485 port (RS-232C)	***EA-DH485-CBL***	<--->
GE 90/30 and 90/70, Micro 90, VersaMax Micro (Port 2) 15-pin D-sub port (RS-422A)	***EA-90-30-CBL***	<--->
MITSUBISHI FX Series 25-pin port (RS-422A)	***EA-MITSU-CBL***	<--->
MITSUBISHI FX Series 8-pin mini-DIN (RS-422A)	***EA-MITSU-CBL-1***	<--->
OMRON Host Link C200 Adapter, C500 (RS-232C)	***EA-OMRON-CBL***	<--->

DV-1000CBL

D4-1000CBL

OP-3CBL-1

FA-15HD

FA-CABKIT

EA-2CBL-1

EA-2CBL

EA-4CBL-1

EA-3CBL

EA-MLOGIX-CBL

EA-4CBL-2

EA-PLC5-232-CBL

EA-SLC-232-CBL

EA-DH485-CBL

EA-90-30-CBL

EA-MITSU-CBL

EA-MITSU-CBL-1

EA-OMRON-CBL

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C-more 3" Micro-Graphic Panel Accessories

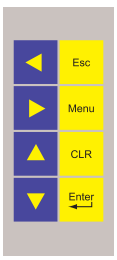
8-button Keypad Bezel

The 8-button keypad bezel can be used with both the touch and non-touch *C-more* 3" Micro-Graphic panels. The keypad includes four directional arrow cursor buttons, and one each of an ESCAPE, MENU, CLEAR and ENTER button. The keypad is intended to be used with the numeric entry object (Style 3) to allow changing of a value, and can also be used to navigate & select objects when using the non-touch panel version.The keypad bezel is designed for easy drop-in of a *C-more* 3" Micro-Graphic panel. No panel configuration required.

Part No. EA-MG-BZ1

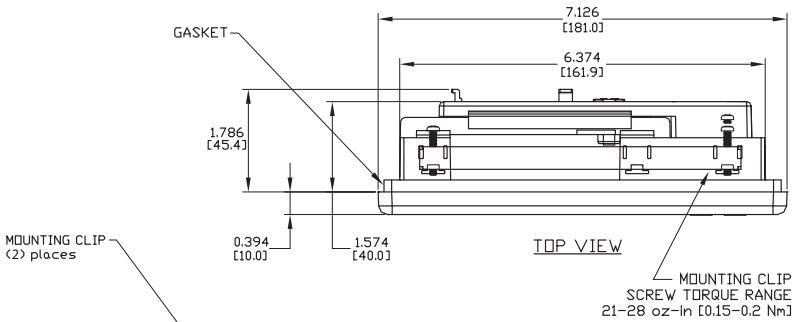
<--->

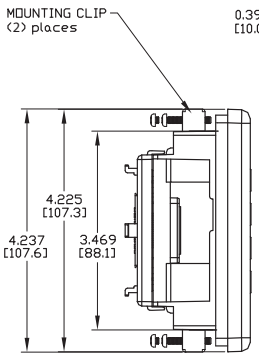
Four directional cursor buttons, and ESC, MENU, CLEAR and ENTER buttons.

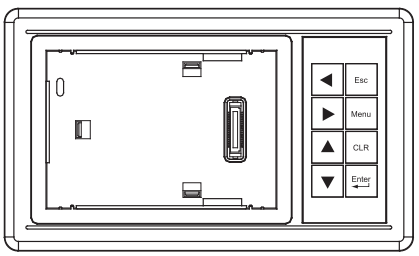


Dimensions

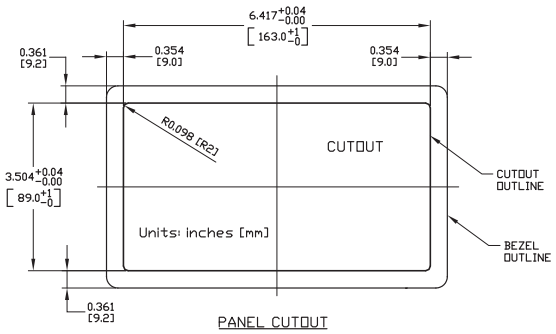
Units: inches [mm]



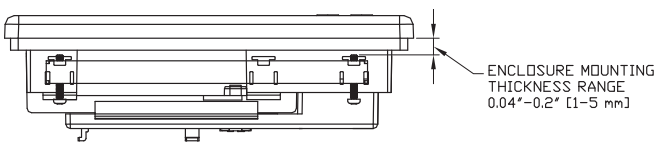




Panel Cutout



Panel Thickness



8-Button Keypad Bezel Specifications	
Part Number	**EA-MG-BZ1**
General	
• ***C-more Micro-Graphic Panels Supported***	EA1-S3ML, EA1-S3MLW, EA1-S3ML-N, EA1-S3MLW-N
• ***Connection***	Connects with expansion connector on the rear of a *C-more* 3" Micro-Graphic panel. An expansion connector is also located on the rear of the keypad bezel to allow the EA-MG-P1 DC Power Adapter, or the EA-MG-SP1 Serial Port with DC Power Adapter to be attached.
• ***Power Consumption***	None
• ***Keypad Button Life***	Minimum of 500,000 cycles
• ***Enclosure Mounting***	(2) mounting clips, EA-MG-BZ1-BRK, included.
	Note: The *C-more* 3" Micro-Graphic panel is installed into the keypad bezel using the EA-MG-S3ML-BRK mounting clips that are supplied with the panel.
Physical	
• ***Dimensions***	7.126" (W) x 4.225" (H) x 2.180" (D) [181.0 mm x 107.3 mm x 55.4 mm]
• ***Weight***	7.05 oz. [200 g]
• ***Environmental***	See environmental specifications at the beginning of this catalog section.

C-more 3" Micro-Graphic Panel Accessories

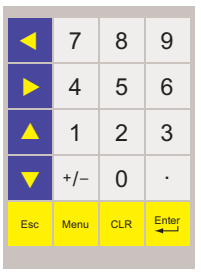
20-Button Keypad Bezel

The 20-button keypad bezel can be used with both the touch and non-touch *C-more* 3" Micro-Graphic panels. The keypad includes four directional arrow cursor buttons, a full numeric keypad, and one each of an ESCAPE, MENU, CLEAR and ENTER button. The keypad is intended to be used with the numeric entry object (Style 3) to allow changing of a value, and can also be used to navigate & select objects when using the non-touch panel version. The numeric buttons can be used to enter a new value. The keypad bezel is designed for easy drop-in of a *C-more* 3" Micro-Graphic panel. No panel configuration required.

Part No. EA-MG-BZ2

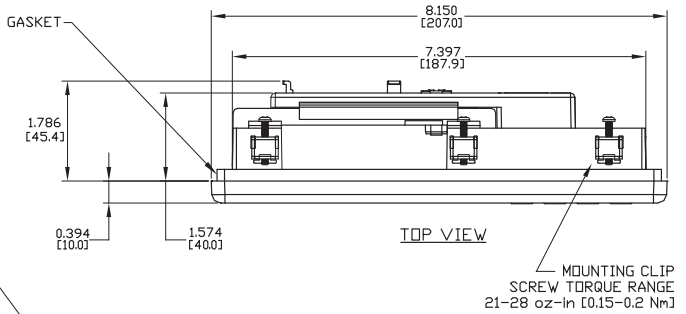
<---->

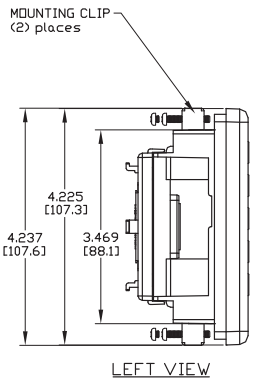
Four directional cursor buttons, numeric buttons, and ESC, MENU, CLEAR and ENTER buttons.

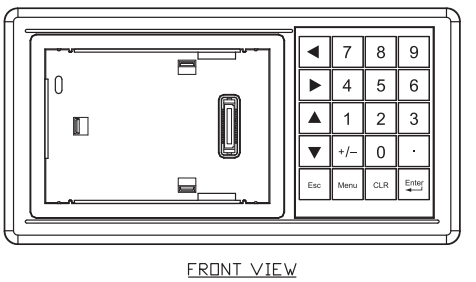


Dimensions

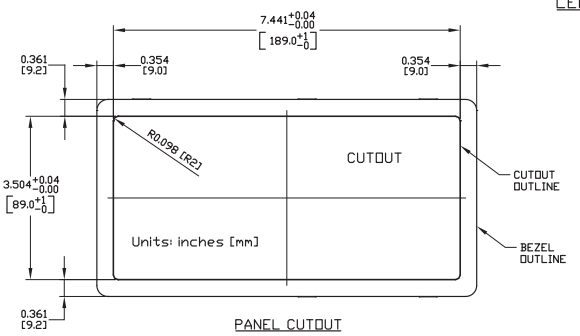
Units: inches [mm]



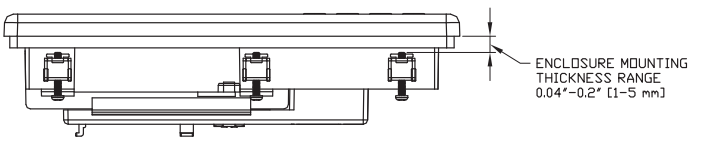




Panel Cutout



Panel Thickness



20-Button Keypad Bezel Specifications	
Part Number	**EA-MG-BZ2**
General	
• ***C-more Micro-Graphic Panels Supported***	EA1-S3ML, EA1-S3MLW, EA1-S3ML-N, EA1-S3MLW-N
• ***Connection***	Connects with expansion connector on the rear of a 3" ***C-more*** Micro-Graphic panel. An expansion connector is also located on the rear of the keypad bezel to allow the EA-MG-P1 DC Power Adapter, or the EA-MG-SP1 Serial Port with DC Power Adapter to be attached.
• ***Power Consumption***	None
• ***Keypad Button Life***	Minimum of 500,000 cycles
• ***Enclosure Mounting***	(6) mounting clips, EA-MG-BZ2-BRK, included.
	Note: The ***C-more*** 3" Micro-Graphic panel is installed into the keypad bezel using the EA-MG-S3ML-BRK mounting clips that are supplied with the panel.
Physical	
• ***Dimensions***	8.150" (W) x 4.225" (H) x 2.180" (D) [207.0 mm x 107.3 mm x 55.4 mm]
• ***Weight***	7.40 oz. [210 g]
Environmental	See environmental specifications at the beginning of this catalog section.

VICPAS
HMI Parts Center

C-more 3" Micro-Graphic Panel Accessories

DC Power Adapter

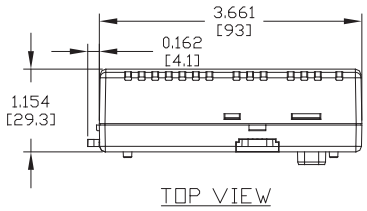
The *C-more* 3" Micro-Graphic panel is designed to use the 5 VDC power that is available from an RJ12 serial communications port found on some *AutomationDirect* PLC's. However, for other devices that do not supply power through their serial commun cations port, the EA-MG-P1 DC power adapter or EA-MG-SP1 serial port with DC power adapter must be used. Both adapters require power from a 12-24 VDC source. The EA-MG-P1 DC Power Adapter for *C-more* 3" Micro-Graphic panels is designed to easily snap on to the rear of a *C-more* 3" Micro-Graphic panel or the rear of an optional Keypad Bezel being used with a *C-more* 3" Micro-Graphic panel.

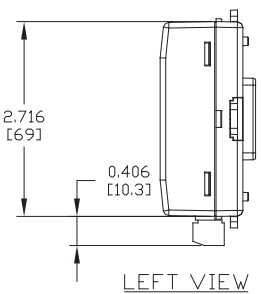
Part No. EA-MG-P1

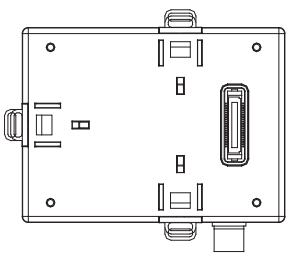
<--->

Dimensions

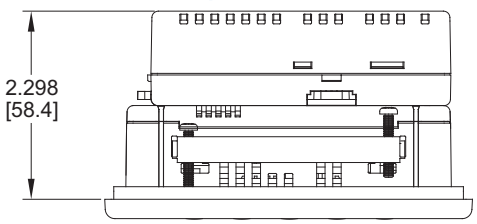
Units: inches [mm]



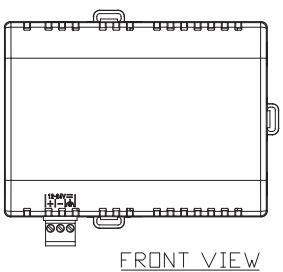




Panel overall depth with adapter installed



Units: inches [mm]



DC Power Adapter Specifications	
Part Number	**EA-MG-P1**
Electrical	
• Input Voltage	12-24 VDC
• Input Voltage Range	10.8-26.4 VDC
• Power Consumption	100 mA @ 24 VDC
• Maximum Power	2.90 Watts
• Maximum Inrush Current	5 A @ 500 µs with 12 VDC applied, 10 A @ 500 µs with 24 VDC applied
• Recommended Fuse	Type AGC fast acting glass fuse, 750 mA, 250 VAC, ADC #AGC-75
• Connector Type	3-pin screw type terminal block
Physical	
• Dimensions	3.823" (W) x 3.284" (H) x 1.331" (D) [97.1 mm x 83.4 mm x 33.8 mm]
• Weight	2.8 oz. [80 g]
Environmental	See environmental specifications at the beginning of this catalog section.

NOTE: Recommended DC power supply to power either DC Power Adapter, *AutomationDirect* Part No. PSP24-024S or PSP24-024C.

C-more 3" Micro-Graphic Panel Accessories

Serial Port with DC Power Adapter

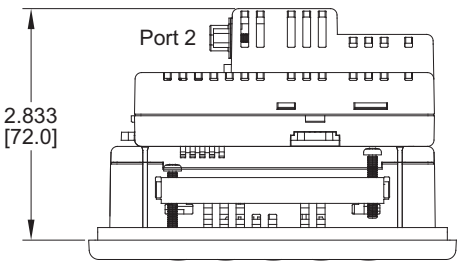
The *C-more* 3" Micro-Graphic panel is designed to use the 5 VDC power that is available from an RJ12 serial communications port of some *AutomationDirect* PLC's. However, for other devices that do not supply power through their serial communications port, the EA-MG-P1 DC power adapter or EA-MG-SP1 serial port with DC power adapter must be used. The EA-MG SP1, with D-Sub 15-pin RS-232/RS-422/485 serial port, can be used to connect to a PLC using RS-232 or RS-422/485. The adapter requires power from a 12-24 VDC source. This optional Serial Port with DC Power Adapter for *C-more* 3" Micro-Graphic panels is designed to easily snap on to the rear of a *C-more* 3" Micro-Graphic panel or the rear of an optional Keypad Bezel being used with a *C-more* 3" Micro-Graphic panel.

Part No. EA-MG-SP1

Supports:
RS-232,
RS-485,
& RS-422

<---->

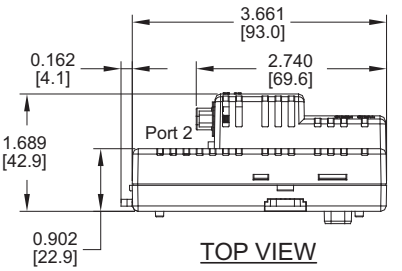
Panel overall depth with adapter installed

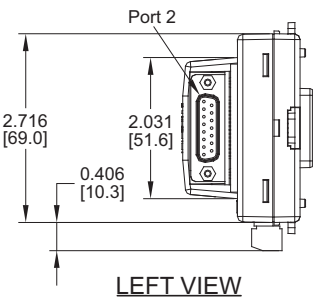


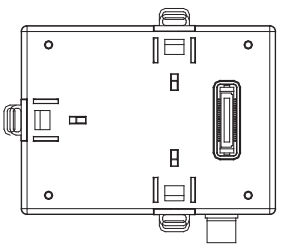
Units: inches [mm]

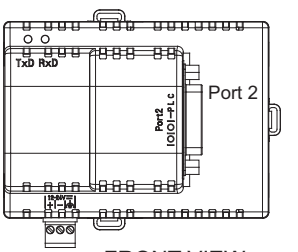
Dimensions

Units: inches [mm]







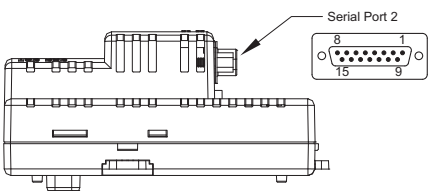


Serial Port w/ DC Power Adapter Specifications	
Part Number	**EA-MG-SP1**
Serial PLC Interface	
• Interface Standard	RS-232 & RS-485/422
• Adjustable Settings from Software (Dependent on PLC Protocol)	Baud rate: 9600, 19200 or 38400 bits/sec Data bits: 7/8 bits Parity: None, Odd/Even Stop bits: 2/1 bits
• Connector Type	15-pin D-sub connector (female)
Electrical	
• Input Voltage	12-24 VDC
• Input Voltage Range	10.8-26.4 VDC
• Power Consumption	100 mA @ 24 VDC
• Maximum Power	2.90 Watts
• Maximum Inrush Current	5 A @ 500 µs with 12 VDC applied, 10 A @ 500 µs with 24 VDC applied
• Recommended Fuse	Type AGC fast acting glass fuse, 750 mA, 250 VAC, ADC #AGC-75
• Connector Type	3-pin screw type terminal block
Physical	
• Dimensions	3.823" (W) x 3.284" (H) x 1.331" (D) [97.1 mm x 83.4 mm x 33.8 mm]
• Weight	2.8 oz. [80 g]
• Environmental	See environmental specifications at the beginning of this catalog section.

NOTE: Recommended DC power supply to power either DC Power Adapter, *AutomationDirect* Part No. PSP24-024S or PSP24-024C.

PLC Serial Communications Port 2

Pin	Signal	Pin	Signal	Pin	Signal
1	Frame GND	6	LE	11	TXD+ (422/485)
2	TXD (232C)	7	CTS (232C)	12	TXD– (422/485)
3	RXD (232C)	8	RTS (232C)	13	Term. Resistor
4	Future	9	RXD+ (422/485)	14	do not use
5	Logic GND	10	RXD– (422/485)	15	do not use

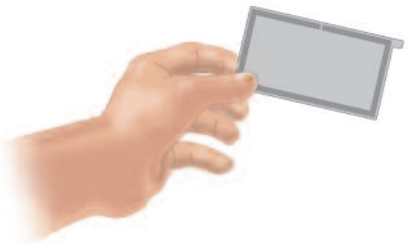


C-more 3" Micro-Graphic Panel Accessories

Clear Screen Overlay

Optional clear screen overlay used to protect *C-more* 3" Micro-Graphic displays from minor scratches and wear. Package contains 5 clear screen overlays.

Part No. EA-MG-COV-CL



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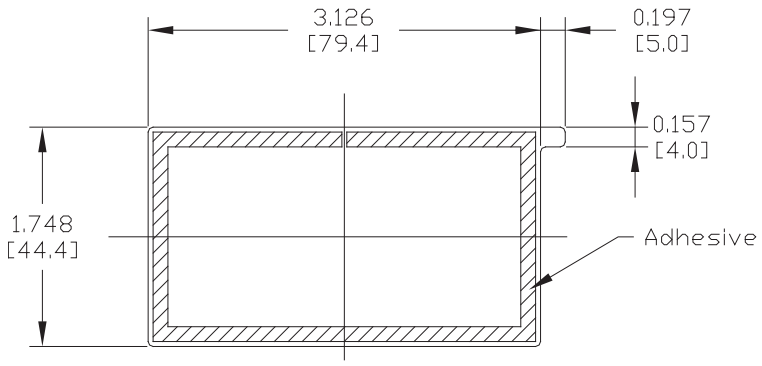
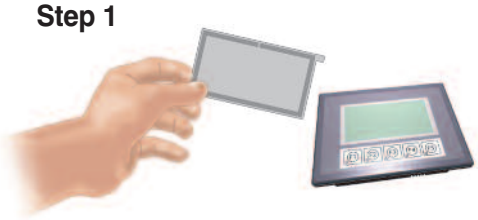
Dimensions

Units: inches [mm]



Clear screen overlay installation

Step 1



Remove the overlay from the package

Step 2

Remove the paper backing from the overlay

Step 3

Align the overlay with the screen and press the adhesive firmly into place

Step 4

Remove the protective film*

***Note: The overlay cover ships with a thin protective film on the face that should be carefully removed after installation.**

C-more 3" Micro-Graphic Replacement Parts

The optional replacement parts can be used to replace damaged, worn or lost *C-more* 3" Micro-Graphic panel components.

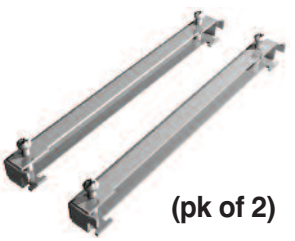
Replacement parts at a glance:

Part Number	Description	Price
EA-MG-S3ML-BRK	Replacement mounting clip for *C-more* 3" Micro-Graphic panels (pk of 2)	<--->
EA-MG-BZ1-BRK	Replacement mounting clip for *C-more* 3" Micro-Graphic keypad bezel p/n EA-MG-BZ1 (pk of 2)	<--->
EA-MG-BZ2-BRK	Replacement mounting clip for *C-more* Micro-Graphic keypad bezel p/n EA-MG-BZ2 and *C-more* 6" Micro-Graphic panels and bezels (pk of 8)	<--->
EA-MG-DC-CON	Replacement adapter DC power connector for optional p/n EA-MG-P1 and p/n EA-MG-SP1 power adapters used with *C-more* 3" Micro-Graphic panels and *C-more* 6" Micro-Graphic panels and bezels (pk of 5)	<--->
EA-MG-S3ML-GSK	Replacement mounting gasket for *C-more* 3" Micro-Graphic panels	<--->
EA-MG-BZ1-GSK	Replacement mounting gasket for *C-more* 3" Micro-Graphic keypad bezel p/n EA-MG-BZ1	<--->
EA-MG-BZ2-GSK	Replacement mounting gasket for *C-more* 3" Micro-Graphic keypad bezel p/n EA-MG-BZ2	<--->
EA-MG-S3ML-FKL	Replacement function key label insert for *C-more* 3"Micro-Graphic panels (pk of 10; 5 blank, 5 F1-F5)	<--->

Panel Mounting Clips
Part No. EA-MG-S3ML-BRK

(pk of 2)

Keypad Bezel 1 Mounting Clips
Part No. EA-MG-BZ1-BRK



(pk of 2)

Keypad Bezel 2 Mounting Clips
Part No. EA-MG-BZ2-BRK

(pk of 8)

DC Power Connector
Part No. EA-MG-DC-CON

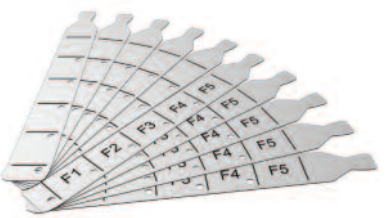
(pk of 5)

3" Panel Gasket
Part No. EA-MG-S3ML-GSK

3" Keypad Bezel 1 Gasket
Part No. EA-MG-BZ1-GSK

3" Keypad Bezel 2 Gasket
Part No. EA-MG-BZ2-GSK

3" Panel Function Keys Label Inserts
Part No. EA-MG-S3ML-FKL



(pk of 10 - 5 blank, 5 F1-F5)

C-more Micro-Graphic Programming Software

FREE software!

C-more Micro-Graphic Programming Software can be downloaded at no charge or a CD version may be purchased by ordering EA-MG-PGMSW. The software requires a USB port on your PC to connect to the *C-more* Micro-Graphic panel. Software Help Files are included in the download. This software programs all the *C-more* Micro-Graphic panels (does not program the *C-more* 6" through 15" touch panels).

Note: This software is used to program C-more Micro-Graphic panels only.
Part Numbers: EA1-S3ML, EA1-S3ML-N, EA1-S3MLW, EA1-S3MLW-N, EA1-T4CL, EA1-S6ML, EA1-S6MLW, EA1-T6CL

NOTE: Software and Firmware Version 3.0 or later is required with model EA1-T4CL.
Software and Firmware Version 2.50 or later is required with model EA1-T6CL.
Software and Firmware Version 2.0 or later is required with models EA1-S6ML and EA1-S6MLW.
Software and Firmware Version 1.5 or later is required with models EA1-S3MLW and EA1-S3MLW-N.
Available for free download at *www.automationdirect.com*.

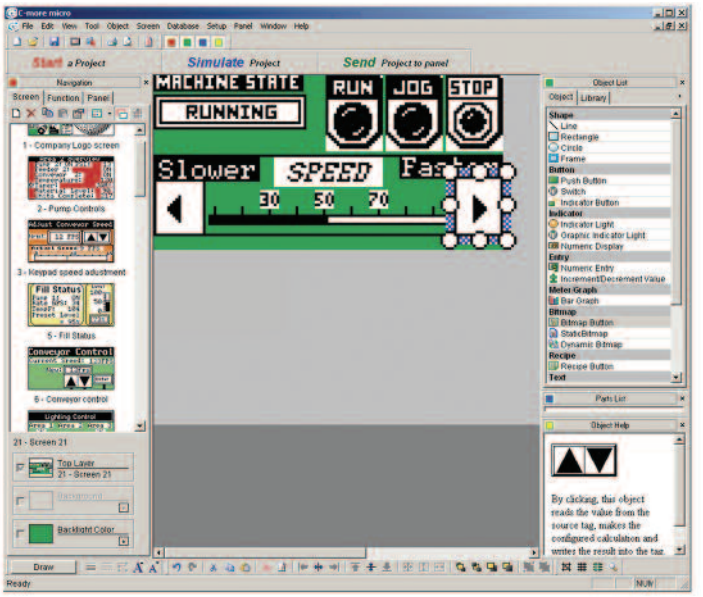
C-more Micro-Graphic Programming Software is a spin-off of its powerful sibling *C-more* Touch Panel. It offers very high end features designed to reduce your configuration time. Simply drag and drop the objects from the object list (right side of screen) onto the the screen construction area. Then configure your PLC tags and click on the objects you wish to use. Use the built-in simulator to review your work on your PC before ever downloading your project! The time saving benefits of the *C-more* Micro-Graphic configuration software could easily pay for the panel. Check out www.C moreMicro.com to download a free version.

Built-in project simulator

- Runs your project on your PC
- Test all of your screens before downloading
- Time savings pays for the panel
- Version 2.5 or later - Simulate function keys and keypad bezel.

Built-in user object/screen libraries

Save time by re-using your custom objects and screens.



Thumbnail project preview pane

Helps keep track of multi-screen projects.

Scrolling object selection window

Lets you find the object you want fast. Just drag and drop it on the screen.

PC requirements

Following are the minimum system requirements for running *C-more* Micro-Graphic Programming Software, EA-MG-PGMSW, on a PC:

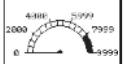
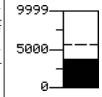
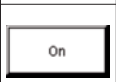
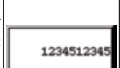
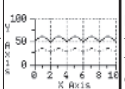
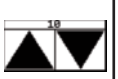
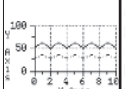
- Personal Computer with a 333 MHz or higher processor (CPU) clock speed recommended;
- Keyboard and Mouse or compatible pointing device
- Super VGA color video adapter and monitor with at least 800 x 600 pixels resolution (1024 x 768 pixels recommended) 64K color minimum
- 150 MB free hard-disk space
- 128 MB free RAM (512 MB recommended); 512 MB free RAM (1GB recommended) for Vista
- CD-ROM or DVD drive for installing software from the CD, or internet access to download free programming software
- USB port to use with an EA-MG-PGM-CBL, USB to RS232 Programming Cable Assembly for project transfer from the programming software to the STN, panels, or USB-CBL-AB6 for TFT panels
- Operating System - Windows® XP Home / Professional Edition Service Pack 2, Windows® 2000 with Service Pack 4, Windows® Vista or Windows® 7.

Scrolling help window

Gives you helpful information on each object

C-more Micro-Graphic Programming Software

C-more Micro-Graphic Panel Objects

Object	Graphic	Object	Graphic
The **Line** object, just like with drawing tools, allows the user to insert a straight line drawing into a project. When a Line is inserted into a project, a window opens to allow the user to setup all available parameters for the Line object. Some of the uses for Line Objects include but are not limited to adding callouts, pointers, or indicators.		The **Analog Meter** object is used to display the current value of a Tag Name.	
The **Rectangle** object, just like with drawing tools, allows the user to insert a drawing of a Rectangle as well as other geometric shapes into a project. When this object is inserted into a project, a window opens to allow the user to setup all available parameters for the Rectangle object.		The **Bar Meter** object is used to monitor up to two assigned Tag Names continuously. This object has various appearances depending upon the relative value of the tags. The Bar Meter can be used to create digital versions of level, current, and flow meters to name a few samples, or gauges that measure speed and other measurable data.	
The **Circle** object, just like with drawing tools, allows the user to insert a drawing of a Circle or ellipse shape into a project. When this object is inserted into a project, a window opens to allow the user to setup all available parameters for the Circle object.		The **Bitmap Button** object offers the ability to use a Bitmap graphic to perform the functions of a Button. This allows users to create their own graphics and implement them within the software project. The Bitmap Button object can be used to activate or deactivate components assigned to a Discrete Tag Name. The C-more Micro-Graphic display only supports two colors, black and white.	
The **Frame** object allows the user to insert a Frame to the project that can be used to Frame other objects. Some of the uses for Frame object include but are not limited to graphically separating objects for different operations that may appear on one screen and emphasizing pushbuttons or other objects that may require more attention by the operator.		The **Static Bitmap** offers the ability to display a Bitmap graphic on any screen. The Static Bitmap does not change state. Refer to the Dynamic Bitmap Object if you require the graphic object to change state based on a Tag Value in your PLC. The dialog box for a "Static Bitmap" object allows you to "read from disk" and select a graphic file for import. Graphics must be in one of the following formats: .BMP .WMF .JPG .JPEG	
The **Pushbutton** object is available from the Button Category of the Object List window. The Pushbutton object is an electronic version of a typical Pushbutton normally found on control panels. The Pushbutton object can be used to activate or deactivate components assigned to a Discrete Tag Name.		**Recipe** objects make it easy to make a large number of tag changes with the push of a single button. Create Recipes with up to 99 entries, and multiple sets of values. Then just push a button to load an entire set of values into the group of recipe tags.	
The **Switch** object is an electronic version of a typical Switch that normally can be found on control panels. The Switch object can be used to activate or deactivate components assigned to a Discrete Tag Name.		The **Dynamic Bitmap** object offers the ability to make an object using two different Bitmap graphics that will display one graphic when the Tag is On and a different graphic when the Tag is Off. Use your own bitmap designs or use some of the bitmaps provided with the software that are located in the User Graphic Library.	
The **Indicator Button** object is available from the Button Category of the Object List window. The Indicator Button object is an electronic version of a typical Indicator Button normally found on control panels. The Indicator Button is a combination of a Pushbutton and an Indicator Light. The Indicator Button can be used to activate or deactivate components assigned to a Discrete Tag Name.		The **Static Text** object is used to display a Frame with a personalized Message. This Frame and Message can be placed on any screen and any location within the screen.	
The **Indicator Light** object is an electronic version of a typical Indicator Light normally found on industrial control panels. The Indicator Light can be configured to display the status of the assigned Discrete Tag Name.		The **Lookup Text** object is used to display a Frame with a personalized Message. This Frame and Message can be placed on any screen and any location within the screen. The object is always displayed like a sign but is configured to display only the message prompted by an assigned Tag Name. Messages are retrieved from a Message Database which is configured by the user with text defined by the user. The Lookup Text Object will scroll text up to 128 characters.	
The **Graphic Indicator Light** object is a more enhanced version of the "Indicator Light Object" that allows the user to choose more detailed graphics to display the status of a tag. This object is an electronic version of a typical Indicator Light normally found on industrial control panels. The Indicator Light can be configured to display the status of the assigned Discrete Tag Name.		The **Dynamic Text** object is used to display text that is retrieved from data stored in a Tag. The Tag Name is assigned to registers in the PLC that contain set character data. The data can be stored in the PLC in ASCII format and may include information such as machine numbers, locations, part numbers, and such. The Message can be configured to be visible (Trigger) when an associated Tag Name is On or Off. This object can be placed on any screen and any location within the screen. The Dynamic Text Object will scroll text up to 40 characters.	
The **Numeric Display** consists of a frame that displays a real-time numeric value according to the value of data received from an assigned Tag Name. The Numeric Display supports numeric Signed Decimal, Unsigned Decimal, BCD, and Floating Point data types with up to 11 digits, including decimal point. User Defined Alpha Numeric Prefix and Suffix values are also supported.		The **Scroll Text** object is available from the Text Category of the Object List window. The Scroll Text object is an electronic version of a marquee. It is similar to the Static Text Object. If the text in the object does not fit in the window, it will scroll from right to left across the window. The Scroll Text object does not require a Tag Name assignment. The Scroll Text Object has a maximum character limit of 128 characters.	
The **Numeric Entry** object is used to enter a value from your Panel to a PLC Register. This object, when selected, opens a Numeric Keypad that allows the user to enter a new value that will be written to the assigned Tag Name. The Numeric Entry supports numeric Signed Decimal, Unsigned Decimal, BCD, and Floating Point data types with up to 11 digits, including decimal points. User Defined Alpha Numeric Prefix and Suffix values are also supported.		The **Screen Change** Pushbutton object is available from the Control Category of the Object List window. The Screen Change Pushbutton object is a pushbutton that can be configured to activate another screen in the project. This object may be edited to various colors and sizes. Users can configure the button to activate the Power-Up screen, Forward Screen, Previous Screen, or any one of the project screens.	
The **Increment/Decrement Value** object is used to add or subtract a value by pressing a button on the Panel. Basically the object uses two Tags, one to read a value from and another to write a modified value to. The Increment/Decrement Value supports numeric Signed Decimal, Unsigned Decimal, BCD, and Floating Point data types with up to 11 digits, including decimal points. The Increment and decrement values are also user selectable.		The **Screen Selector** object is available from the Control Category of the Object List window. This object is an enhanced version of the Screen Change pushbutton in that it offers many more features and defaults with data from screens in the project. This helps to save time by not having to create Screen change buttons for each screen. This object may be edited to various colors and sizes.	
The **Real Time Graph** object displays the value stored in up to two PLC tags, over a history of up to 24 points each. One point is added at each refresh.		The **Adjust Display Contrast** object is used to allow the operator to adjust the Panel Display Contrast. The default Display setting often works in most applications, however lighting may vary based on the location of each application. In these cases the operator can use this object to make adjustments. The current display setting value will appear on the top of the button and will change as the arrow keys are pressed. This button can be modified to various sizes.	
The **Line Graph** object displays the values of up to 24 PLC address points. Up to two address arrays can be displayed. The line is drawn in its entirety at each refresh.		The **Function** object is used to assign the panels function key buttons to a particular action as well as assigning the control of the LED On/Off status. When a button has been assigned as a shift button, the then F1 through F5 will become F6 through F10. The Function Object buttons will activate when the hardware button is pressed or when the object is pressed on the screen. The object size is restricted so that the keys will line up with the hardware function keys on the panel.	

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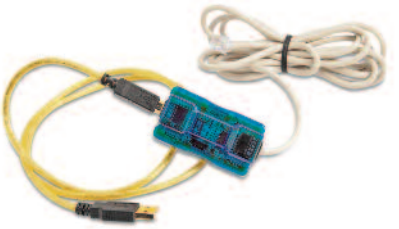
C-more Micro-Graphic Programming Connections

C-more STN Micro-Graphic Programming Connection

Using the *C-more* Micro-Graphic Programming Software for project development, STN *C-more* Micro-Graphic panels can be connected to a PC (personal computer) by using EA-MG-PGM-CBL, the USB-to-RS-232 cable assembly.

- Connect the USB programming cable (included) from a USB port type A on the PC to the USB type B port on the converter (included). Next connect the serial programming cable from the converter's RJ12 port to the panel's RJ12 serial port. The panel receives power from the USB port of the PC that it is connected to through the USB to RS-232 converter assembly.

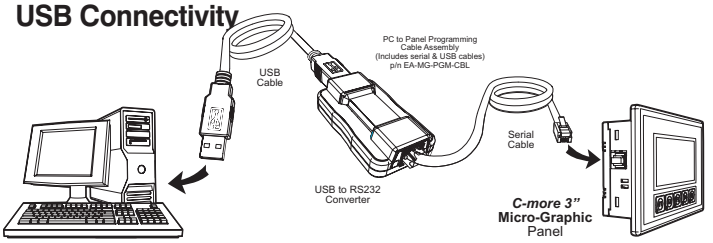
USB to RS-232 Programming Cable Assembly



Part No. EA-MG-PGM-CBL

<--->

USB Connectivity



NOTE: The TFT panels EA1-T4CL and EA1-T6CL do NOT use the EA-MG-PGM-CBL assembly. The TFT panels use a standard USB A-to-B type cable such as USB-CBL-AB6. See below.

USB to RS-232 Converter Specifications	
Part Number	EA-MG-PGM-CBL
Hardware	
USB Interface	USB Specification Rev. 1.1 Connector: USB Type B jack to accept USB Type B cable plug
Serial Interface	RS-232 (EIA-232-E) Connector: RJ12 phone jack 6p to accept RJ12 cable plug
Baud Rate	115.2 kbps Maximum
Input Voltage	5 VDC (Supplied thru serial interface cable.)
Power Consumption	50 mA (Does not include power to panel and/or bezel.)
Accessory Cables (included)	
USB Cable	USB Type A plug to PC on one end, USB Type B plug to converter on other end, 0.30 m [1 foot] length (* Note)
Serial Cable	RJ12 phone plug connectors on both ends, 2.0 m [6.56 feet] length (* Note)
Physical	
Dimensions	2.559" (W) x 1.417" (H) x 0.886" (D) [65.0 mm x 36.0 mm x 22.5 mm]
Weight	1.06 oz. [30 g]
Environmental	See Micro-Graphic panel specifications at the beginning of this catalog section.
*** Note: Maximum cable length for either the USB or serial cable should not exceed 2.0 m [6.56 feet] in length.**	

C-more TFT Micro-Graphic Programming Connection

The *C-more* TFT Micro-Graphic panels EA1-T4CL and EA1-T6CL include an integral USB to serial converter. It is programmed via any USB Type A to Type B cable.

When properly installed on your PC, the device driver will be assigned a communication port number and appear in Windows Device Manager as a serial com port.

USB cable options for programming EA1-T4CL and EA1-T6CL

Part Number	Description	Price
USB-CBL-AB3	Standard 3-ft. (0.9 m) USB 2.0 cable, A-type connector to B-type connector, used to connect personal computer to any *C-more* touch panel for setup and programming. (Note: Touch panels require a 24 VDC power source for configuration and operation.)	<--->
USB-CBL-AB6	Standard 6-ft. (1.8 m) USB 2.0 cable, A-type connector to B-type connector, used to connect personal computer to any *C-more* touch panel for setup and programming. (Note: Touch panels require a 24 VDC power source for configuration and operation.)	<--->
USB-CBL-AB10	Standard 10-ft (3 meter) USB 2.0 cable, A-type connector to B-type connector, used to connect personal computer to any *C-more* touch panel for setup and programming. (Note: Touch panels require a 24 VDC power source for configuration and operation.)	<--->
USB-CBL-AB15	Standard 15-ft. (4.6 m) USB 2.0 cable, A-type connector to B-type connector, used to connect personal computer to any *C-more* touch panel for setup and programming. (Note: Touch panels require a 24 VDC power source for configuration and operation.)	<--->